

Remarks

Claims 1-22, 25-48, and 51-56 are pending in the application. Claims 1-6, 22, 25, 29, 46-48, and 51, stand rejected under 35 U.S.C. 102(b) as anticipated by U.S. pat. no. 5,293,853 (Berger). Claims 1-6, 22, 25, 29, 46-48, and 51 stand further rejected under 35 U.S.C. 102(b) as anticipated by U.S. pat. no. 5,101,791 (Kuettner et al). Claims 7-21, 22, 25-28, 30-48, and 52-54, stand rejected under 35 U.S.C. 103(a) as obvious over U.S. pat. no. 5,293,853 (Berger et al).

A request for continued examination ("RCE") is submitted herewith in accordance with 37 C.F.R. § 1.114.

Claims 1 and 29 have been amended to require that the pump is connected to the fuel supply through a pressure regulator. Support for these amendments is provided on page 3, lines 12-15 of the present application and fig. 1, which clearly describe and show a pressure regulator between the fuel supply and the pump. Additionally, the preamble of claims 1 and 29 has been amended to recite that the pump system is for an external combustion engine. Support for this amendment is provided on page 2, lines 2-4 of the subject application. No new matter has been added.

Claims 55 and 56 have been added to further define embodiments of the invention. The limitations in these dependent claims were contained in originally filed dependent claims 7 and 30. Support for the

claim limitation is provided on p. 3, line 26 to page 4, line 3. Thus, no new matter has been added.

Claim Rejections --- 35 U.S.C. §102(b)

Claims 1-6, 22, 25, 29, 46-48, and 51, stand rejected under 35 U.S.C. 102(b) as anticipated by U.S. pat. no. 5,293,853 (Berger).

Berger teaches a system for controlling an internal combustion engine. (See, Berger '853 abstract.) Berger's system, as shown in fig. 1, includes a pump 105 which feeds fuel into an internal combustion engine 100. Berger provides no teaching or suggestion of adjusting the pressure of the fuel to the pump using a pressure regulator or any other means. (See, Berger '853, col. 1, line 65 to col. 2, line 52.) Indeed, the Berger system pumps liquid fuel to feed an internal combustion engine, so there would be no need to utilize a pressure regulator to feed the pump.

By contrast, claim 1, as amended, requires in part:

1. A pump system for metering a flow of a gaseous fuel from a fuel supply into a pressurized combustion chamber of an external combustion engine, the system comprising:

a. a pump, the pump having an inlet and an outlet, the inlet connected to the fuel supply through a pressure regulator and the outlet connected to the combustion chamber ...

Because Applicant's invention meters the flow of a gaseous fuel, the use of a pressure regulator in combination with metered flow would help to eliminate inconsistencies in the gaseous mass flow rate that could be

cause by less consistent gas pressures at the pump inlet. Since Berger '853 does not teach or suggest a required limitation of claim 1, i.e., connecting a pump through a pressure regulator to a fuel supply, Berger '853 cannot anticipate claim 1. Claims 2-6, 22 and 25, which depend from claim 1 and add further limitations, are deemed not anticipated by Berger '853 for at least the same reasons as for claim 1.

Likewise, claim 29, as amended, requires (in part):

29. A method for controlling a flow of a gaseous fuel from a fuel supply into a pressurized combustion chamber of an external combustion engine, the method comprising:

a. providing a pump, the pump having an inlet and an outlet, the inlet connected to the fuel supply through a pressure regulator and the outlet connected to the combustion chamber;...

Since Berger '853 does not teach or suggest a required limitation of claim 29, i.e., connecting a pump through a pressure regulator to a fuel supply, Berger '853 cannot anticipate claim 29. Claims 46-48, and 51, which depend from claim 1 and add further limitations, are deemed not anticipated by Berger '853 for at least the same reasons as for claim 1.

Claims 1-6, 22, 25, 29, 46-48, and 51 stand further rejected under 35 U.S.C. 102(b) as anticipated by U.S. pat. no. 5,101,791 (Kuettner et al).

Kuettner teaches an apparatus and method to control the running smoothness of an internal combustion engine. (See, Kuettner '791 abstract.) Kuettner's apparatus, as shown in fig. 1, includes an internal

combustion engine 10 including several cylinders which receive metered fuel from a fuel pump 20. (See, Kuettner col. 3, line 60 to col. 4, line 37.) Kuettner neither teaches nor suggests connecting a pressure regulator to the input of a fuel pump or any other means to control input fuel pressure. Indeed, as with the Berger system, the Kuettner apparatus pumps liquid fuel to feed an internal combustion engine, so there would be no need to utilize a pressure regulator to feed the pump.

Claim 1, as amended, requires in part:

1. A pump system for metering a flow of a gaseous fuel from a fuel supply into a pressurized combustion chamber of an external combustion engine, the system comprising:
 - a. a pump, the pump having an inlet and an outlet, the inlet connected to the fuel supply through a pressure regulator and the outlet connected to the combustion chamber ...

Again, as discussed above, Applicant's invention meters the flow of a gaseous fuel rather than a liquid fuel, the use of a pressure regulator in Applicant's invention in combination with metered flow would help to eliminate inconsistencies in the gaseous mass flow rate that could be caused by less consistent gas pressures at the pump inlet. Since Kuettner '791 does not teach or suggest a required limitation of claim 1, i.e., connecting a pump through a pressure regulator to a fuel supply, Kuettner '791 cannot anticipate claim 1. Claims 2-6, 22 and 25, which depend from claim 1 and add further limitations, are deemed not anticipated by Kuettner '791 for at least the same reasons as for claim 1.

Likewise, claim 29, as amended, requires (in part):

29. A method for controlling a flow of a gaseous fuel from a fuel supply into a pressurized combustion chamber of an external combustion engine, the method comprising:

a. providing a pump, the pump having an inlet and an outlet, the inlet connected to the fuel supply through a pressure regulator and the outlet connected to the combustion chamber;...

Since Kuettner '791 does not teach or suggest a required limitation of claim 29, i.e., connecting a pump through a pressure regulator to a fuel supply, Kuettner '791 cannot anticipate claim 29. Claims 46-48 and 51, which depend from claim 1 and add further limitations, are deemed not anticipated by Kuettner '791 for at least the same reasons as for claim 1.

Claim Rejections --- 35 U.S.C. §103(a)

Claims 7-21, 22, 25-28, 30-48, and 52-54 stand rejected under 35 U.S.C. 103(a) as obvious over U.S. pat. no 5,293,853 (Berger et al).

These rejections for obviousness rely on Berger '853 for teaching the limitations of independent claims 1 and 29 in each of these dependent claims. For the same reasons as cited above for claims 1 and 29, Berger '853 neither teaches, discloses nor suggests these limitations. Therefore, claims 7-21, 22, 25-28, 30-48, and 52-54 cannot be obvious over Berger '853 in view of the knowledge of one skilled in the art.

Further, Applicants respectfully traverse the rejection of claims 7-

21, 22, 25-28, 30-48, and 52-54 for obviousness on an additional ground. The examiner has not met his burden of factually supporting a prima facie conclusion of obviousness. See, e.g., MPEP 2142. A prima facie showing of obviousness requires *inter alia* “some suggestion or motivation either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.” See MPEP 2143. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant’s disclosure. See In re Vaeck, 947 F.2d 488 (Fed. Cir. 1991). Here, no showing has been made that a skilled worker would be motivated to employ the specific types of pumps and control methods disclosed in Applicants’ application and claimed in claims 7-21, 22, 25-28, 30-48, and 52-54 to achieve precise control of the fuel flow. For example, the statement that “it is well known in the art that different types of pumps can be used ... for the purpose of achieving appropriate work output.” is not sufficient to establish prima facie obviousness. See MPEP 2143.01. Since a prima facie case of obviousness has not been established by the office action, claims 7-21, 22, 25-28, 30-48, and 52-54 are deemed patentable.

The Commissioner is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith to our Deposit Account No. 19-4972. Applicants request consideration of the new claims, reconsideration of the rejected claims and a notice of allowance. The Examiner is requested to telephone the undersigned if any matters remain outstanding so that they may be resolved expeditiously.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'John L. Conway', with a stylized, cursive script.

John L. Conway
Registration No. 48,241
Attorney for Applicants

Bromberg & Sunstein LLP
125 Summer Street
Boston, MA 02110-1618
(617) 443-9292

02229/00134 442212.1